Claim 1 (currently amended): A scheduler for a server comprising:

a first level generator associated with groups of connections;

a second level generator associated with connections corresponding to the groups of connections, said first level generator identifying which connections in the second level generator corresponds to a group in the first level generator that are to be considered for service, said second level generator identifies the connections corresponding to the group to receive service from the server, said second level generator in connection with said first level generator; [[and]]

a first level filter mechanism which filters out inactive groups of connections, said first level filter mechanism connected to the first level generator and the second level generator, ~~wherein the first level generator, the second level generator and the first filter mechanism together providing a minimum specified bandwidth to each connection considered for service.~~;

a second level filter mechanism which filters out inactive connections, said second level filter mechanism connected to the second level generator; and

a zero level generator associated with supergroups corresponding with groups, said zero level generator in connection with the first level generator, said zero level generator identifying which groups in the first level generator correspond to a supergroup in the zero level generator that are considered for service.

Claims 2-4 (canceled)

Claim 5 (currently amended): A scheduler as described in Claim [[4]] 1 including a zero level filter mechanism which filters out inactive supergroups, said zero level filter mechanism connected to the zero level generator and the first level generator.

Claim 6 (original): A scheduler as described in Claim 5 wherein the zero level generator includes a zero level bitmap generator which generates a zero level schedule bitmap which indicates the supergroup to be scheduled for service, the first level generator includes a first level bitmap generator which indicates the group to be scheduled for service, and the second level generator includes a second level bitmap generator which generates a second level schedule bitmap which indicates the connections to be scheduled for service.

Claim 7 (original): A scheduler as described in Claim 6 wherein the zero level, first level and second level filter mechanism includes a zero level filter encoder, first level filter encoder and second level filter encoder, respectively, which filters out inactive

-3-

supergroups from the zero level schedule bitmap and encodes the zero level schedule bitmap with inactive supergroups removed, which filters out inactive groups from the first level schedule bitmap and encodes the first level schedule bitmap with inactive groups removed, and which filters out inactive connections from the second level schedule bitmap and encodes the second level schedule bitmap with inactive connections removed, respectively.

Claim 8 (original): A scheduler as described in Claim 7 including an interface which maintains a zero level active bitmap, a first level active bitmap and a second level active bitmap having only active connections corresponding to the zero level schedule bitmap, first level schedule bitmap and second level schedule bitmap, respectively.

Claim 9 (original): A scheduler as described in Claim 8 wherein the zero level filter encoder reads the zero level schedule bitmap and ANDS it with the zero level active bitmap to filter out inactive supergroups, the first level filter encoder reads the first level schedule bitmap and ANDS it with the first level active bitmap to filter out inactive groups, and the second level filter encoder reads the second level schedule bitmap and ANDS it with the second level active bitmap to filter out inactive supergroups.

Claim 10 (original): A scheduler as described in Claim 9 wherein the zero level bitmap generator, first level bitmap generator and second level bitmap generator dynamically generates bits for each supergroup, group and connection, respectively.

Claim 11 (original): The scheduler as described in Claim 10 wherein the zero level bitmap generator includes a counter for each supergroup which is decremented as a function of an intercell interval, wherein the intercell interval is the time it takes for the server to service a cell, the first level bitmap generator includes a counter for each group which is decremented as a function of the intercell interval, and the second level bitmap generator includes a counter for each connection which is decremented as a function of the intercell interval.

Claim 12 (original): A scheduler as described in Claim 11 wherein the zero level bitmap generator sets a bit for a supergroup whose counter decrements to zero, the first level bitmap generator sets a bit for a group whose counter decrements to zero, and the second level bitmap generator sets a bit for a connection whose counter decrements to zero.

Claim 13 (original): A scheduler as described in Claim 12 wherein the zero level bitmap generator, first level bitmap generator and second level bitmap generator each include a rate limiting counter associated with each counter, wherein the bit for the supergroup, group or connection, respectively, is set whenever both the counter and the corresponding rate limiting counter decrements to zero.

Claim 14 (original): A scheduler as described in Claim 13 wherein the zero level bitmap generator, first level bitmap generator and second level bitmap generator each

generate a guaranteed rate bitmap for supergroups, groups and connections, respectively, which receive service before any other supergroups, groups or connections, respectively, in the respective schedule bitmaps.

Claim 15 (original): A scheduler as described in Claim 14 wherein the zero level bitmap generator, first level bitmap generator and second level bitmap generator proportionately reduce the service to each supergroup, group and connection, respectively, when overbooking occurs and when total bandwidth is less than the line rate.

Claim 16 (previously presented): A method for scheduling service of a server comprising the steps of:

identifying groups in a first level generator corresponding to a supergroup and a zero level generator;

identifying a group of connections with the first level generator to receive service from the server;

identifying connections corresponding with the group of connections with a second level generator to receive service from the server;

filtering out inactive groups of connections in regard to the first level generator; and

filtering out inactive connections in regard to the second level generator.

Claims 17-19 (canceled)

Claim 20 (previously presented): A method as described in Claim 16 including after the identifying groups step, there is the step of filtering out inactive supergroups of connections in regard to the zero level generator.

Claim 21 (original): A method as described in Claim 20 wherein the filtering out the inactive supergroups step includes the step of ANDing a zero level schedule bitmap of the zero level bitmap generator with a zero level active bitmap of an interface to filter out inactive supergroups.

Claim 22 (original): A method as described in Claim 21 wherein the filtering out the inactive groups step includes the step of ANDing a first level schedule bitmap of the first level bitmap generator with a first level active bitmap of an interface to filter out inactive groups.

Claim 23 (original): A method as described in Claim 22 wherein the filtering out the inactive connections step includes the step of ANDing a second level schedule bitmap of the second level bitmap generator with a second level active bitmap of an interface to filter out inactive connections.

Claim 24 (original): A method as described in Claim 23 wherein the identifying the groups of connections includes the step of generating dynamically the zero level schedule bitmap, the identifying the group step includes the step of generating dynamically the first level schedule bitmap, and the identifying the connections step includes the step of generating dynamically the second level generator schedule bitmap.

Claim 25 (original): A method as described in Claim 24 wherein the step of generating the zero level schedule bitmap includes the step of decrementing a counter for each supergroup every intercell interval; the step of generating the first level schedule bitmap includes the step of decrementing a counter for each group every intercell interval; the step of generating the second level schedule bitmap includes the step of decrementing a counter for each connection every intercell interval.

Claims 26-29 (canceled)

Claim 30 (original): An apparatus as described in Claim 12 wherein each counter at each level has a different number of bits.

Claim 31 (original): An apparatus as described in Claim 8 wherein each active bitmap has a bit which is set to 1 when an associated connection is active and is set to 0 when an associated connection is inactive.

Claim 32-35 (canceled)

Claim 36 (previously presented): An apparatus for serving connections comprising:

a server;

a memory in which cells of the connections are stored, said memory connected to the server; and

a scheduler having a schedule bitmap and active bitmaps which indicate which connections are active, the scheduler filters out inactive connections from the schedule bitmap by ANDing schedule bitmap with the active bitmaps, the scheduler schedules when cells of the

connections in the memory are to receive service from the server and provides a minimum

specified bandwidth to each connection, said scheduler connected to said server.

Claims 37 and 38 (canceled)

Claim 39 (previously presented): A scheduler for a server comprising:

a first level generator associated with groups of connections;

a second level generator associated with connections corresponding to the

groups of connections, said first level generator identifying which connections in the second

level generator corresponds to a group in the first level generator that are to be considered for

service, said second level generator identifies the connections corresponding to the group to

receive service from the server, said second level generator in connection with said first level

generator, wherein connections arise from entities, and including multiple counters associated

with each entity which have multiple bits, including multiple schedule bitmaps associated with

each entity that are used to schedule connections from the corresponding entity at different

priorities or a combination of priorities; and

a first level filter mechanism which filters out inactive groups of connections, said first level filter mechanism connected to the first level generator and the second level generator.